REMARKS

In the Action, claims 1-12 are rejected. In response, new claim 13 is added to depend from claim 1. In view of these amendments and the following comments, reconsideration and allowance are requested.

Claim 13 is added to depend from claim 1 to recite that the measurement for the clay dispersibility of the polymer is determined in high hardness water having a calcium concentration of 200 ppm in terms of calcium carbonate. Support for this claim is found on page 33, lines 12-27, and specifically line 26 of the specification. Thus, claim 13 is fully supported by the specification as originally filed.

Rejection of Claims 1-12 under 35 U.S.C. § 102(e)

Claims 1-12 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,44,771 to Yamaguchi et al. Yamaguchi et al. is cited for disclosing an acrylic acid-maleic acid copolymer having a weight average molecular weight of 2,000 to 50,000, a calcium ion scavengeability of 400 mg calcium carbonate per gram, and a clay dispersibility of 0.6 or more.

The present invention as recited in claim 1 is directed to a water-soluble polymer having a calcium ion scavengeability of not less than 0.40 and also having a clay dispersibility of not less than 0.50 in high hardness water. Yamaguchi et al. does not disclose a polymer having the combination of these claimed properties. In particular, Yamaguchi et al. does not disclose a polymer having a clay dispersibility in high hardness water of not less than 0.50. Yamaguchi et al. discloses generally that the resulting polymer has a clay dispersibility value. However, the clay dispersibility value of Yamaguchi et al. is not the same value as the claimed invention and is not calculated or measured in the same manner.

As disclosed in column 3, lines 63-67, the clay dispersibility of Yamaguchi et al. is measured in the presence of magnesium ion. The clay dispersibility in the presence of magnesium ion is a value to evaluate the dispersion extent of the clay in the presence of magnesium ion and the copolymer of Yamaguchi et al. See, for example, column 4, lines 6-12 of Yamaguchi et al. Examples 1-6 of Yamaguchi et al., and particularly column 25, disclose the method of determining the clay dispersibility in the presence of magnesium ion. Thus, the measurement of the clay dispersibility of Yamaguchi et al. is determined in low hardness water having a magnesium concentration of 100 ppm.

In contrast, the clay dispersibility value recited in claim 1 is determined in high hardness water as described on page 33 of the specification. Claim 13 specifically recites that the clay dispersibility value is determined in high hardness water having a calcium concentration of 200 ppm in terms of calcium carbonate. Thus, the clay dispersibility value of Yamaguchi et al. is measured in terms of magnesium ion concentration while the clay dispersibility value of the claimed invention is measured in terms of calcium concentration. Therefore, the methods of measuring the clay dispersibility values of Yamaguchi et al. are different from the method used to determine the clay dispersibility value of the claimed invention, even though the same terms are used in Yamaguchi et al. and the claimed invention. Furthermore, it is clear that the clay dispersibility value of Yamaguchi et al. is not measured in high hardness water so that the values do not correspond directly to the values as determined according to the present invention.

Accompanying this amendment is a Declaration under 37 C.F.R. § 1.132. The Declaration presents test data of the copolymer of the examples of Yamaguchi et al. The test data present the clay dispersibility in high hardness water as measured according to the method of the invention in high hardness water. The test data also present the calcium ion

scavengeability value in the same units as the value is determined in the present invention. The calcium ion scavengeability as measured according to the method of Yamaguchi et al. is similar to the method used according to the present invention and as described on pages 32 and 33 of the specification. However, the units for the measurement of the calcium ion scavengeability according to the method of Yamaguchi et al. are different from the units according to the method of the present invention. The calcium ion scavengeability of Yamaguchi et al. is calculated as mg in terms of calcium carbonate per 1 g of the solid content of the polymer. In the present invention, the calcium ion scavengeability is calculated as g (grams) in terms of calcium carbonate per 1 g of the solid content of the polymer. Thus, the value of the calcium ion scavengeability of the claimed invention is 1/1000 of the reported value of Yamaguchi et al. In the attached Declaration, the units of the calcium ion scavengeability of Yamaguchi et al. are calculated using the same units of the present invention, namely grams in terms of calcium carbonate per 1 g of the solid content of the polymer.

As shown in the test data presented in the Declaration, the copolymers of Examples 1-1 to 1-5, 2-16 and 2-17 are prepared according to the Examples of Yamaguchi et al. have a calcium ion scavengeability of greater than 0.40 but have a very low clay dispersibility value when measured in high hardness water. In particular, the clay dispersibility in high hardness water of the copolymers of Yamaguchi et al. are significantly lower than the clay dispersibility of the claimed invention. As demonstrated in the Declaration, the polymers of Yamaguchi et al. according to the Examples therein have a clay dispersibility in high hardness water ranging from about 0.10 to at most 0.15. Thus, the clay dispersibility of the copolymers according to Yamaguchi et al. are outside the claimed range of not less than 0.50 in high-hardness water. The copolymers according to Yamaguchi et al. have different

properties from the claimed water-soluble polymer, and therefore are not the same. Accordingly, claims 1-12 are not anticipated by Yamaguchi et al.

In view of the above comments and the data presented in the Declaration, Applicants respectfully submit that the rejection over Yamaguchi et al. should be withdrawn. Claims 2-12 are also not anticipated by Yamaguchi et al. for reciting additional features not disclosed or suggested in Yamaguchi et al. In particular, claim 3 recites a water-soluble polymer comprising a polymer mixture of a polymer A and a polymer B as essential components where the polymer A has a calcium ion scavengeability of not less than 0.45 and polymer B has a clay dispersibility in high hardness water of not less than 0.65. Claim 3 also recites that the polymer mixture has a calcium ion scavengeability of not less than 0.40 and a clay dispersibility of not less than 0.60 in high hardness water. The data presented in the Declaration demonstrate that the copolymers of Yamaguchi et al. do not have a clay dispersibility of not less than 0.60 in high hardness water. Furthermore, Yamaguchi et al. does not disclose or suggest the combination of two different polymers based on the respective 1) calcium ion scavengeability and 2) clay dispersibility. In particular, Yamaguchi et al. does not disclose a polymer mixture of a first polymer having a calcium ion scavengeability of not less than 0.45 and a second polymer having a clay dispersibility of not less than 0.65 in high hardness water. Accordingly, the polymer mixture of claim 3 is not disclosed in Yamaguchi et al. and claim 3 is not anticipated. Claim 4 depends from claim 2 and recites the same properties of the polymers A and B. Therefore, claim 4 is also not anticipated for the same reasons as in claim 3.

Claims 5 and 6 depend claims 3 and 4, respectively, to recite the ratio of the polymer A to polymer B being in the range of 20/80 to 95/5. As noted above, Yamaguchi et al. does not disclose a mixture of two different polymers having the recited clay dispersibility and

calcium ion scavengeability so that claims 5 and 6 are not anticipated by Yamaguchi et al. Claims 7-12 depend from claims 1-6, respectively, to recite a detergent composition comprising the water-soluble polymer. Since Yamaguchi et al. does not disclose or suggest the claimed water-soluble polymer, the detergent compositions of claims 7-12 are not anticipated by Yamaguchi et al.

New claim 13 depends from claim 1 to recite that the clay dispersibility value is determined in high hardness water having a calcium concentration of 200 ppm in terms of calcium carbonate. As noted above, Yamaguchi et al. measures the clay dispersibility in terms of the magnesium ion concentration. Yamaguchi et al. does not disclose the claimed method for determining the clay dispersibility value. Furthermore, the data presented in the Declaration demonstrate that the copolymers of Yamaguchi et al. do not have the claimed clay dispersibility when measured in high hardness water having a calcium concentration of 200 ppm.

In view of the above comments, claims 1-13 are allowable over the art of record.

Obviousness-Type Double Patenting Rejection

Claims 1-12 are rejected under the judicially-created doctrine of obviousness-type double patenting over claims 1-15 of U.S. Patent No. 6,444,771 to Yamaguchi et al. As noted in the Action, the claims are not identical. Applicants' respectfully disagree with this rejection. Claim 1 of Yamaguchi et al. is a product-by-process claim directed to an acrylic acid-maleic acid copolymer obtained by a specific process. Furthermore, claim 1 recites the resulting polymer having a magnesium ion scavengeability in terms of magnesium hydroxide per gram and a magnesium scale inhibitability of 30% or more. In contrast, claim 1 of the present invention recites a water soluble polymer having a calcium ion scavengeability and a

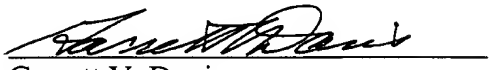
clay dispersibility of not less than 0.50 in high hardness water. The claimed calcium ion scavengeability and the claimed clay dispersibility in high hardness water are not obvious variations of the polymer claimed in Yamaguchi et al. Applicants do not recite a polymer having a specific magnesium ion scavengeability or a magnesium scale inhibitability as in Yamaguchi et al. In a similar manner, Yamaguchi et al. does not claim a calcium ion scavengeability or a clay dispersibility in high hardness water. Furthermore, as noted above, the copolymers of Yamaguchi et al. do not have the claimed clay dispersibility in high-hardness water.

Claim 2 of Yamaguchi et al. also recites the clay dispersibility of the resulting polymer in terms of magnesium ion and recites the specific steps for preparing the copolymer. Claims 3 and 4 of Yamaguchi et al. recite the molecular weight distribution of the resulting copolymer. Independent claim 5 of Yamaguchi et al. refers to the maleic acid having a specific neutralization degree before polymerization and defines the resulting copolymer in terms of magnesium ion scavengeability and the molecular weight distribution. These features are not recited in the claims of the present application. Furthermore, there is no suggestion that these features are inherent or obvious in the claimed water-soluble polymer of the present invention. The Action indicates that Yamaguchi et al. claims an acrylic acid-maleic acid copolymer having a weight-average molecular weight of 2,000 to 50,000, a calcium ion scavengeability of 400 mg calcium carbonate per gram, and a clay dispersibility of 0.6 or more. However, none of these features are recited in the claims of Yamaguchi et al.

In view of the above, Applicants respectfully submit that the claimed invention is not obvious over the claimed invention of Yamaguchi et al. Accordingly, Applicants submit that the obviousness-type double patenting rejection should be withdrawn.

In view of these amendments and the above comments, reconsideration and allowance are requested.

Respectfully submitted,



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